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ON THE AUTUMNAL MIGRATION OF BIRDS ON THE YORKSHIRE COAST.

By Frederick Boyes.

On the 23rd of October last I went down to Spurn Head to witness the arrival of our autumn immigrants, and an account of what I saw may be of interest to the readers of 'The Zoologist.'

First, as to the place, Spurn Point is the terminal portion of a narrow peninsula about four miles in length, which is washed by the sea on the one side, and the Humber on the other. It was in olden times very much broader than it is now; indeed it is not unlikely that the sea will eventually swallow it up altogether, since, even within the memory of man, it has made such encroachments that there is now in some places only a very narrow strip a few yards in width unwashed by the tide, and as this is composed entirely of sandhills and "bent" grass, it offers but a poor resistance against a rough sea. The spot is well situated for the observation of migratory birds as they pass overhead or rest after their long journeys, and has long been noted for the number that annually alight there, many of them being so fatigued with their passage that they are only too glad to pitch on the first strip of land they fall in with, no matter how unsuited it may be to their natural requirements.

During the two or three days of easterly winds which prevailed previous to my visit, a great portion of the large army of southward-bound birds had already passed Spurn; but I was not too late to see much that was interesting, and to note a few facts that were either new to me, or of which I had previously heard only by report. The most noticeable feature was the great number of Robins; there were scores, I think I may say hundreds, of them hopping about this out-of-the-way place, which must have formed a great contrast to their usual haunts amongst homesteads and gardens: they had evidently quite lately arrived, and were resting themselves previously to dispersing over the country or moving still further southward. I am afraid they were only getting a scanty supply of food, for what they could find amongst long grass and sand I can scarcely say. In a small walled garden only a very few yards square, containing a few currant trees, &c., there must have been twenty or thirty of them—native informants said fifty at least—searching for food; and in all the ditches and hedgerows of the cultivated lands further from the coast, Robins were very plentiful. This migration of the Redbreast is not new, but I believe an annual occurrence. Last year at this spot they were even more numerous.

The next birds in point of numbers were the Goldcrests, or "Woodcock-pilots," as they are locally called, and they were everywhere; many of them being so exhausted as to be easily knocked down with a hat, and numbers might have been caught in an ordinary insect-net. Prior to my arrival two Rough-legged Buzzards had been shot; I saw one of them, a very fine female.

There were numbers of Blackbirds, Thrushes and Redwings in the neighbourhood, and small parties of the latter were passing at intervals all day long. There was this difference in these birds, that while the Redwings migrated in small flocks, the Blackbirds and Thrushes did so singly or in twos and threes. I saw a Ring Ouzel and a solitary Fieldfare, but was told that a flock of about fifty of the latter birds had arrived so early as the last week in September, and though I told my informant that he must have been mistaken, he assured me he was not.

A few Woodcocks were shot, and there were numbers of Short-eared Owls and a single Long-eared one, which latter had killed itself against the telegraph-wire. I met two shooters who had bagged no less than nine Short-eared Owls for "screens"; these were afterwards sent to Mr. Richardson, the birdstuffer here, where I dissected several of them, and found the stomachs empty in every case but one, and this contained the remains of a Blackbird, probably found dead beneath the telegraph-wires.

Amongst this host of bird-life a few Great Gray Shrikes were seen, and three or four were shot; two of them by myself. The stomach of one of these contained part of a Common Wren, one foot and leg being entire. I think I have already mentioned in 'The Zoologist' that these Shrikes arrive with the Redwings, &c., at this time of the year. Occasionally I disturbed Common Wrens from amongst the long grass, and as Mr. Cordeaux had some time ago, if I remember rightly, expressed an idea that some Wrens he had observed at Spurn in the autumn looked larger than the Common Wren, I procured two for identification.

I observed numbers of Chaffinches and a few Bramblings; also a few Lesser Redpolls and one Mealy Redpoll, which last I shot; it was a male, and alone when I shot it. Some half-dozen Reed Buntings which I saw were no doubt migrants; they were all in winter plumage. A flock of Common Linnets were seen several times, but as these birds breed there amongst the coarse grass, I cannot include them in the migratory list. I saw no Twites, though they are usually present there in the autumn, nor did I see a single Snow Bunting. The only summer birds I noticed were one or two Willow Wrens.

All the species I have mentioned were resting from their journey, and would be moving again in a few days: some of them only rest a day and then are off again, and their places are taken by others. Looking at the small area of the ground which formed the scene of my observations, the great host of immigrants that visit it from the north at this season of the year is marvellous. A very striking feature was the great number of Rooks passing overhead at intervals all day long; in some instances the flocks were composed of Rooks and Jackdaws mixed. Hooded Crows in straggling parties and Sky Larks in small flocks were also passing all the day. All these birds were steering a direct southerly course. The birds comprising some of the flocks of Rooks looked tired, and moved slowly at no great altitude; others, and especially the larger flocks, were high in the air, and were evidently not so much distressed: the Jackdaws were very noisy. This migration of the *Corvidæ* had been going on for some few days previously, and would no doubt continue some days longer. Were they noticed passing the south coast? and whence their destination?

[This article was received prior to the appearance of 'The Zoologist' for January, and its publication was only delayed for want of space.—Ed.]

ORNITHOLOGICAL NOTES FROM DEVON AND CORNWALL DURING THE AUTUMN OF 1876.

By John Gatcombe.

On my return to Plymouth I went to see the variety of Yellow Bunting mentioned in my last notes (2nd ser. 5146), and found it to be really of a bright yellow canary-colour, and not light buff, like Mr. Bond's specimen. To show how nearly it resembled a Canary in colour, I was told by the birdstuffer that when it was first brought to him, seeing that it was in a rough and mutilated condition, and not for a moment doubting it to be a Canary, he advised the servant to take it back to his master, with the message that he did not consider it worth preserving. This the man did, but brought it again the next day, saying that his master particularly wished it to be stuffed, that it was shot on Dartmoor, and hoped he would try to do his best with it; upon which Mr. Peacock examined the bird more closely than he did at first, and found, to his surprise, that it was not a Canary but a Yellow Bunting.

Some Scoters were obtained in Plymouth Sound on the 3rd of October, one of which was a very fine adult male. On the following day a white Swallow was killed at Huntshill, near Bridgwater. On the 14th an immature white Spoonbill was brought to Plymouth Market, which was killed on the banks of the St. Germans river, Cornwall. On the 21st a young Black Tern was shot in Plymouth Sound, and other Terns seen. The last Wheatear noted by me for the season was seen on the rocks at the Devil's Point, Stonehouse, on the 23rd of the same month.

A young Red-throated Diver, shot in the Sound, had the stomach crammed with Sprats: a common name for this species is Sprat Loon. The contents of the stomach of a Cormorant, killed the same day, consisted of three Wrasses of a tolerably good size. A young Merganser was also obtained in Plymouth Sound, and its stomach was found to contain several Blennies, showing that it must have been fishing close to the rocks.

Several Long-eared Owls were brought to the birdstuffers on the 30th of October, and flocks of Ring Ouzels were seen on Dartmoor. The following day I observed a Snow Bunting on the cliffs near Mount Batten. The wind was N.E., and very cold, after two days' frost. This little bird was so tame that I got within three yards of it, and then had some difficulty in frightening it away, which I did on account of there being some birdcatchers in the immediate vicinity. Further along the coast, towards the Mewstone, I observed a large Northern Diver, many Cormorants, and some Wigeon.

The Black Redstart, as usual, made its appearance on the Devonshire coast during the first week in November. On the 6th of that month I observed an immature bird on the rock at Stonehouse: on the 8th a fine old male on the rocks near the Plymouth Citadel, and on the 24th another young bird, near the Devil's Point, Stonehouse. On the 4th of November I observed about thirty Herons on the mud-banks of the river Tamar, near Warleigh, where there is a heronry. On the same day I examined six Short-eared Owls, which had been brought to the birdstuffer for preservation: they were very plentiful last season. Kingfishers were also numerous on the coast, and many were killed, I am sorry to say. The Common Gull (*L. canus*), I think, was rather more abundant than it has been for the last few years. Three Water Ouzels were killed on Dartmoor on the 4th: I examined their stomachs, and found that they contained nothing but insects. A Gray Shrike was seen on the moor between Lydford and Bridestowe on the 15th.

On the 22nd November, whilst walking along the coast beyond Bovisand, I observed a fine pair of Ravens and a Gannet, and surprised a Crow in a nook amongst the rocks, feeding on a dead Herring Gull. On the same day, at Burrow Island, some miles further to the east, large flocks of Sanderlings were seen, and many specimens killed, some of which I examined, and found them to have assumed their full winter dress. A young Common Tern was also obtained: this is very late in the season for this species to be found on our coast.

Some adult Great Blackbacked Gulls made their appearance in our harbour on the 25th November, no doubt in consequence of the prevailing severe gales: they do not usually arrive until after Christmas, unless the weather be very stormy. I examined a fine old male which had been shot, and found that the white of the head and neck was nearly as pure as in the breeding season, with only a few very faint dusky lines appearing.

Two Gannets were seen off Bovisand Bay on the 20th, and one was shot; the tail of this bird was so much worn that it had the appearance of having been eaten by moths, the shafts of some of the feathers alone remaining. On the 21st an immature Black-throated Diver was killed in the Sound. Although so similar to the Great Northern Diver in both its immature and winter plumage, I think this species may always be distinguished by its smaller size and the form of its bill, which is more slender and has less of an angle on the lower mandible. The ridge of the upper mandible also is slightly more curved or arched, while the top of the head and back of the neck is of a more pure and uniform gray, without any indication of the dusky band always more or less observable on that of the Northern Diver, even in its immature and winter dress.

The severe and long-continued gales in December brought an unusual number of Great Northern Divers to our coasts, and during that month I examined no less than twelve specimens, in the flesh, which had been sent to the Plymouth and Stonehouse birdstuffers for preservation: I also observed as many more in our bays and estuaries. The local papers, too, recorded the capture of several on various parts of the coast. Some Redthroated Divers were also obtained, but they were not nearly so plentiful as the Great Northern. During a heavy gale on December 5th a Gray Phalarope was seen by myself and others swimming close to the rocks near the Devil's Point, Stonehouse: it was in perfect winter plumage, and very tame, but being constantly persecuted and pelted with stones, it frequently rose and flew a short distance, each time uttering a feeble note or cry, described by the bystanders as a kind of squeak or whistle: this sound I am sorry to say I did not myself hear, being unfortunately slightly deaf, nor was I so close to the bird as some others were. I may here mention that the Gray Phalarope is rarely seen on the coast of Devon so late in the year. Cormorants and Shags were very numerous in December, frequenting the bays and estuaries during the day, and returning, singly, or in small parties, to the cliffs and high rocks towards dusk. One day I watched a Shag struggling with a large "Father-lasher" (*Cottus scorpius*), which it did not contrive to swallow for a quarter of an hour: Divers and Cormorants generally seem to have much trouble with this kind of fish, on account, I suspect, of its large and well-armed head. Strange to say, whilst writing this, I laid down my pen to watch with my glass a large Northern Diver in difficulties with a fish, apparently of the same kind, in the harbour, not two hundred yards from the window of the room in which I write, and this fine fellow did not seem to manage it a bit better than the Shag. But of all fish a large Flounder or Dab is to the Northern Diver by far the most troublesome to manage.

On the 11th December I saw another immature Black Redstart on the rocks at Stonehouse. There were two young male Golden-eyes in the Plymouth Market on the 16th, presumably obtained in the neighbourhood. Little Grebes at the same time were very plentiful in the rivers and estuaries; thirteen of the latter were seen together on the Laira, and several were brought to our birdstuffers; some of them, strange to say, still retaining traces of the breeding plumage, having the cheeks and sides of the neck strongly tinged with chesnut or bay, and the breast and belly clouded or spotted with dusky gray. During the same month some Long-eared Owls were killed in the neighbourhood of Plymouth, and several Oyster-catchers were seen and shot on the Plymouth Breakwater.

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OCCASIONAL NOTES.

A curiously-coloured Weasel.—On the 25th December, 1876, a Weasel was caught in a rat-trap at Northrepps, Norfolk, which had both fore feet and one fore leg entirely white, also an oblong brown spot in the midst of the white of the abdomen. The Weasel not being subject to a seasonal change of colour like the Stoat, I think this variation from the normal colouring worth recording. The specimen was an exceedingly small female, weighing not quite two ounces.—J. H. Gurney (Northrepps, Norwich).

[In the second edition of Bell's 'British Quadrupeds' it is stated (p. 188) that "sometimes, though rarely, the Weasel becomes white in winter; and the tail, though paler than at other times, always retains its reddish tinge, as that of the Stoat does its black tip."—Ed.]

On the Occurrence of the Lemming in Newfoundland.—Since reading the interesting paper by Mr. W. D. Crotch on the "Migration and Habits of the Norwegian Lemming" (Journal of Linnean Society, vol. xiii. No. 65, p. 83), it strikes me that there is just a possibility that this interesting little animal may be found to inhabit the mountains in the northern parts of Newfoundland. It is, I believe, indisputably proved that the Lemming is an inhabitant of Greenland: then why not Newfoundland? I know of no other species of the *Arvicolæ*, or even of the *Muridæ*, which makes such a periodical, and withal suicidal, migration. In my "Notes on the Zoology of Newfoundland" (Zool. 2nd ser. 2042) will be found the following note:—"Strange to say that during a residence of two years in Newfoundland I never could obtain, nor even see, any species of mouse; although the settlers assured me that in some seasons they literally swarmed, but whether of this genus (*Mus*) or not I was unable to learn. Probably *M. musculus*, Linn., occurs on the island, but from the accounts of the settlers I should infer is not the species which is periodically seen in such large quantities: these probably belong to the genus *Arvicola*, or to some allied genus. If true, there is something peculiarly interesting in these periodical visitations—or, I should, perhaps, rather say migrations—of mice, for I was informed that these muscine armies come from the interior, or from that direction, towards the sea, which they boldly enter, and are consequently drowned and their bodies cast on the shore 'by thousands.'" Without entering into Mr. Crotch's theory of the probable cause of these periodical migrations of the Norwegian Lemming, I will only add that, like that species, its Newfoundland congener *invariably migrates towards the west.* May I, therefore, through the medium of 'The Zoologist,' call the attention of naturalists in Newfoundland to this interesting subject? In the neighbourhood of Cow Head Harbour these drowned "mice" have been observed on the land-wash "by thousands."—HENRY REEKS (Thruxton, Hants).

ORNITHOLOGICAL NOTES FROM COBHAM.—As usual, in November and December, the gamekeepers here obtained a single female Merlin, which was found dead, having been probably slightly wounded by a shot. When I say as usual, I mean that for the last three years at the same season a single female Merlin has been obtained here, and in each case accidentally, the first two having been shot in mistake for Sparrowhawks. Previously to 1874 the female Merlin was unknown here, and the first specimen was not recognised by the head keeper, although he knew the male well. It would seem that the females of this species arrive along the Thames and Medway in October and November; the males are more commonly seen in March and April. I have never seen an old blue male except in these months, and if I have seen a male Merlin at all in December or January, it has generally been in very bad weather, when the Fieldfares, Redwings and Sky Larks begin moving about in search of food. As a rule, the female Merlin is as nearly as possible the same length as the male Sparrowhawk, viz., twelve inches, but the specimen obtained last year was nearer thirteen inches, and was very white on the nape, like a hen Sparrowhawk. The female Merlin is very distinct from the male on the wing. The extreme shortness of the latter, usually between ten and eleven inches, distinguishes him at once from all other British hawks. I have generally noticed, too, that the male is more given to that struggling, fighting manner of getting through the air, which makes him look so very like a Missel Thrush in the distance. The female Merlin, on the other hand, is more graceful in her flight, though the motion of her wings in chasing a Lark over a stubble-field is sometimes inconceivably rapid. I have twice seen one chasing a Lark in this manner, though apparently not particularly anxious to catch it. On one occasion I saw a female Merlin dashing at two Partridges on the ground, and on my putting them up she instantly darted after them from a low bough on which she had been sitting. I have just said that the male Merlin does not usually exceed eleven inches in length. It is worthy of note, however, that I have seen black-backed birds from Egypt that must have been fully twelve inches long. The labels had been lost, and therefore the sex was not known for certain, but it seems possible that these may have been females assuming the male plumage, especially as they were not very rufous underneath. I may observe that the under side of the wings looks very white in the Merlin, thus affording a good mark of distinction at a distance. The male and female Kestrels keep very much apart. On December 20th I had not seen a female for many weeks, but on the 6th of that month I saw three males close together; and it is noticeable how often Kestrels and Hobbies go about in trios. I am glad to see by Mr. Rodd's letter that I am not singular in thinking that there are two races of black-clawed Kestrels, for the white-clawed Lesser Kestrel and Red-legged Falcon may more appropriately be termed "Kestrelets," as indeed they have been termed by a writer in 'The Ibis.' The extremely small appearance of the male Kestrel when flying at a great height, with wings half closed and feathers close to its body, is remarkable. It looks then no bigger than a Swift, and the fawn-colour of the under parts looks almost black. The female Kestrel may be distinguished by being slightly longer, with a thicker head and neck and much whiter under parts. The rufous of the upper parts is also paler, and looks yellow in the distance. When old, it gets very gray on the rump and tail, and I got one this year in which all trace of rufous had vanished from those parts. Even in immature plumage the male may usually be distinguished by a deeper tone of colouring on the back and darker quills. In this stage he looks a curious coppery colour when sitting. Though more slenderly built, and as a rule a shorter bird than his mate, his wings do not seem any shorter in proportion, and he consequently looks longer-winged. The reverse is the case with the Merlin, the distinction in size being manifest in all the proportions. A son of one of the keepers here saw seven Sparrowhawks together near the village of Chalk. He knows the species well, and thought they looked like an old female and six young ones. I think this was in September. 1876 was a great year for them, and I have seen more female Sparrowhawks during the past autumn than I ever remember to have seen before. I saw one from Egypt the other day which measured sixteen inches, the extra length being chiefly in the tail. It is somewhat remarkable that the Rough-legged Buzzard was unrecognized here until December 6th, 1876, the common species occurring almost every year about November 1st. On December 6th I went to a well-known haunt of the Common Buzzard to see if any were about, and I at once perceived two Buzzards hovering over a wood. I noticed several peculiarities in their appearance. Their heads were conspicuously light in colour, and their long wings and hovering flight gave them a somewhat aquiline appearance. Waiting about the place, I very soon had a good view of one which was being chased by a Hooded Crow, and presently settled on a low tree. I had now no doubt what they were. The whitish head, white basal half of the tail, whitish under side of the wings, dark band across the belly, and yellowish edgings to the upper plumage, all convinced me that they were the rough-legged species. Seen on the wing, the mottled plumage of the back presented a sort of marbled appearance, with alternate light and shade. Seen sitting, the yellowish edgings predominated, making the bird look like the light-coloured race of the Sea Eagle which is found in Egypt. The light under side of the wings, excepting one dark spot, is a very sure mark of distinction from the Common Buzzard. But, above all, the flight is unmistakably different. It is almost the difference between a Kestrel and a Sparrowhawk, the wings of *Archibuteo lagopus* being long and slightly pointed, instead of straight and round: this feature is very noticeable when the bird is flying away from you, the points of the wings being directed backwards. In the rapid beating of the wings, with alternate smooth glidings and shootings, the Roughlegged Buzzard resembles the Hawks and Falcons rather than the Buzzards. Sometimes even he will sweep along with curved wings almost like a Sea Gull. The head looks less heavy than in the common species. I am sorry to say that within forty-eight hours one of these fine birds was trapped at a Pigeon, which was supposed to have been killed by a Sparrowhawk. On the 18th and 19th December I saw the other. When disturbed he perched on the very top of a tall ash, from which he watched the intruder intently. While looking at the two Rough-legged Buzzards on December 6th they were joined by a third bird, uniformly brown in colour, and with shorter and rounder wing, This I have little doubt was a Common Buzzard. In November last I twice saw a Firecrest here, in company with Goldcrests among bracken. I noticed the black stripe through the eye, which readily distinguishes this bird from the commoner species.—CLIFTON.

EIDERS IN THE ESTUARY OF THE MOY, COUNTY MAYO.—On the 4th of March, 1870, when visiting the island of Bartragh with two friends, our attention was attracted by a pair of large ducks resting at low water on the edge of the channel near the bar. They appeared to be much larger than Mallards, and looked almost as dark as Scoters, with the exception of the front of the neck and upper part of the breast, which were white, and a light-coloured patch on the back between the shoulders. They were very wary, and would not permit us to approach sufficiently close to identify them. I did not again see them until the 18th of April, when I observed them diving for food in the channel just opposite Moyview. They had a habit of retiring at low water to the lonely part of the channel near the bay to rest on the sand, and then, with the rising tide, returning to feed between Moyview and Castleconnor, and occasionally higher up the river, within a mile or two of Ballina. Until the 12th of May I was unable to satisfy myself as to what they really were; but on that day I obtained a close view of them from behind a wall at Killanly, while they were diving close to the shore, and I was then pretty sure that they were Eiders, a species which I had never met with here before. Being seldom on the water after the latter date, I did not see anything of these ducks until the month of July, when I observed one of them flying down the channel near Bartragh, and the salmon fishermen, to whom it was well known as the "big duck," told me they had remarked only one bird frequenting the river all the season, its companion having disappeared shortly after I had seen the pair together on the 12th of May. Early in September I saw the single bird again near Moy Fort, within a few hundred yards of the Shipping Quay; and on the 6th of October, as I was returning home from Ballina, I observed it swimming up a small bay ending in a narrow marshy creek near Killanly. It being a very high spring-tide, the creek was completely filled up to the mouth of the little stream, and if the duck got up the narrow part between the banks, it would be concealed from view of the road, and would probably rest there, for some time at least, while the tide was high. Being determined, if possible, to obtain this bird, having already failed so often in doing so, I hastened home for my boat; but as all the men were employed on a distant part of the farm I had no one to row. Not to lose a chance, therefore, two young ladies accompanied me in the boat, and we rowed up the little bay. We saw nothing of the bird until we got nearly to the head of the creek, when he appeared swimming down between the rushy banks. Before coming within shot, however, he dived, passing right under the boat, and did not show himself until outside of us, when he dived again, so quickly after rising to the surface that I found it extremely difficult to shoot him. However, after a smart and most exciting chase of nearly a quarter of a mile, he became rather blown, and being unable to dive so quickly as at first, I got a fair shot and knocked him over, not at all too soon, for my crew were getting exhausted. It proved to be an immature male Eider, and when presenting it to the Royal Dublin Society's Museum, I asked the taxidermist to ascertain whether there were any old wounds such as would account for the bird not migrating to its usual summer haunts. He afterwards assured me he had discovered no trace whatever of any wound beyond the recent shot-marks, and that the bird was in first-rate condition. In the month of December following, my friend Capt. Dover shot a beautiful male Eider near Bartragh, and he thought it probably might have been the companion bird of the one I shot, which had disappeared from the river shortly after I had last seen them together on the 12th of May. Both specimens are now in the Museum of the Royal Dublin Society. The Eider Duck is of very rare occurrence on the Irish coast, and especially so on this part of it, these being the first of the species that I have met with, although I have been shooting on the estuary here every winter for many years past; and Thompson, in his 'Birds of Ireland,' mentions only three specimens of this bird as having been obtained in Ireland—one, a fine male, obtained near Ballbriggan, on the Dublin coast, in May, 1840, and two others shot on the Mayo coast in January, 1842.—Robert Warren (Moyview, Ballina, Co. Mayo).

Ornithological Notes from Essex.—A considerable number of the Lesser Tern bred last season on the Landguard Fort Common, Felixstow. This no doubt is attributable to the protection now afforded them by Act of Parliament. Amongst the wading birds and sea-fowl shot during August and September last on the Dovrecourt beach, on the flats of the river Stour, the salt-marshes at Ramsay, and other places on the east coast, were Knots, Sanderlings, Green Sandpipers, Greenshanks, Curlew Sandpipers, Temminck's Stints, Red-necked and Gray Phalaropes. A Little Gull also was killed on the Dovrecourt beach on August 24th, and a Sandwich Tern on the Pye Sand on September 12th. On August 23rd two Kentish Plovers were seen, and one of them was shot on the beach at Dovrecourt. A Common Skua was obtained just outside Harwich Harbour on September 12th, and a female Eider Duck in the River Orwell on the 28th October. During the week ending November 4th a great number of Short-eared Owls were killed in the neighbourhood of Harwich. Between the 6th and 10th of that month seven Purple Sandpipers were shot on the stone breakwater, Harwich; while last, though not least, a Spoonbill was shot on the mud-flats of the River Stour on October 20th, by a wild-fowler named Porter, who unfortunately consigned the bird to the spit.—F. Kerry (The Bank, Harwich).

Rare Birds in Wilts and Dorset.—On the 22nd October last a Dotterell was observed on the downs in this parish by a parishioner whose accuracy I can vouch for: he whistled to it as it flew past him, and it settled some distance off in the same track he was pursuing, when he rose it a second time. The Dotterel is annually getting rarer, I am sorry to say, on our Wiltshire Downs; but they are still occasionally seen on the Plain near Salisbury, both in spring and autumn, though not so regularly or in such numbers of late years as formerly. But I am glad to be able to assert that they still form one of that group of comparative rarities in the ornithological catalogue which makes the broad downs of Wiltshire so attractive to the lover of birds, the Curlew, Thick-knee, Dotterel and Golden Plover still being found amongst us, while both the Great and Lesser

Bustard have visited us during the last ten years. In the previous month I saw a fine Hoopoe, which had been shot at Branksome Tower, near Bournemouth, on the 15th September: it was in the hands of Mr. Green, a birdstuffer there. I also obtained in the spring of last year, from the neighbouring parish of Broadchalke, a fine specimen of the Great Gray Shrike (*Lanius excubitor*), which had been killed in that parish in Easter week: it is, as far as I can judge, an adult female.—A. P. MORRES (Britford Vicarage, Salisbury).

THE TIME OF DAY AT WHICH BIRDS LAY THEIR EGGS.—I am inclined to think that birds lay their eggs rather earlier than has been stated, although not, as some affirm, in the middle of the night, and for this reason:—Some time ago I wished to see what time a certain Green Woodpecker laid, and for three mornings I went about 5.15, and an egg was always there. The next morning I went a little after four o'clock, when she flew out of the hole, but there was no egg; in another hour and a half, however, it had been deposited. Again, when out in the spring mornings about six o'clock, I nearly always noticed that nests previously found had each an extra egg in them.—C. MATTHEW PRIOR.

BENEFIT OF THE WILD BIRD PROTECTION ACT.—Mr. Edward Hart, the well-known naturalist, of Christchurch, informed me not long ago that in the spring of last year (1876), during May, there was a flock of some five hundred Bartailed Godwits in the Christchurch Estuary, which remained there for some ten days or a fortnight: they were all in full summer plumage, and presented to a bird-preserver a most enticing shot, but the Act duly protected them. He had been in the business, he told me, many years, and had lived at Christchurch all his life, more than thirty years, and had never seen a similar sight before. This in itself speaks volumes in behalf of the Act.—A. P. MORRES.

SCANDINAVIAN FORM OF THE DIPPER IN EAST YORKSHIRE.—In my communication to 'The Zoologist' on this variety of the Dipper (2nd ser. 1871) I expressed my opinion that the very few Dippers which had been procured in this district would probably turn out to be *Cinclus melanogaster*. Knowing that a Dipper had been shot at Easington, and preserved by Mr. Lawton, of that place, when in that neighbourhood a short time ago I called in to have a look at it, and my surmise, in this instance, turned out to be correct, as it is a fine specimen of the black-breasted Dipper. It was shot on the 24th October, 1874.—F. BOYES (Beverley).

ROLLER IN IRELAND.—We have much pleasure in being able to record what we believe to be the second instance of the occurrence of this bird in Ireland. A fine specimen has been forwarded to us for preservation, shot some miles from Carrick-on-Shannon. It was observed from the drawing-room window, pursued by a number of Magpies, when it was followed by the observer and shot. From being much injured internally, we were unable to determine the sex, but believe it to be a female. The stomach contained the remains of numerous small beetles.—WILLIAMS & SON (Taxidermists, 2, Dame Street, Dublin).

[In Thompson's 'Natural History of Ireland' (i., p. 366), three instances of the reported occurrence of the Roller in Ireland are mentioned, but the author states that, at the date of the publication of his work, "no example of the bird, unquestionably killed in this island, had to his knowledge come under the inspection of the naturalist."—ED.]

MIGRATION OF THE PIED FLYCATCHER.—The individuals of this species which occur on our east coast during the autumnal migration are invariably described as being immature birds only. I think it very likely that observers may have been mistaken in this matter, as at this season the sexes, both mature and immature, are scarcely distinguishable. In his 'Birds of Northumberland and Durham' (p. 79), Mr. Hancock has very clearly pointed out the close resemblance in the plumage of the sexes in both the young and old birds. "They are," he says, "after the autumnal moult, all of the same obscure brown tint above; the males, however, may be known by the white band on the front of the head, by the white bar on the wing being broader than in the female, and by the basal portion of the tail being a little darker, and consequently by the white of this part being more conspicuous." The subject of the immigration of this species on the N.E. coast in the autumn is worth looking into by ornithologists and observers living in these districts.—JOHN CORDEAUX (Great Cotes, Ulceby).

PIED FLYCATCHER IN YORKSHIRE.—Until the summer of 1874 I was quite unacquainted with the Pied Flycatcher, never having seen or heard of this bird in Airedale. In that year, however, I happened to go into Wharfedale, which is separated from Airedale by three or four miles only of hilly moorland, "wildly majestic," and there to my surprise I found it breeding plentifully. In fact, it was commoner there than the Spotted Flycatcher. I saw no less than six pairs. This local distribution of the species strikes me as being somewhat remarkable.—E. P. BUTTERFIELD (Wilsden).

REPORTED OCCURRENCE OF THE GOLDEN EAGLE IN DURHAM.—The following note from a friend at West Hartlepool is dated November 15th, 1876:—"On Friday last a Golden Eagle was seen hovering about Seaton Carew, and was shot at by several persons. It afterwards went over in the direction of Throston Cars, and may have found its way to the Dene, as it was going in that direction." Now although the date is earlier, it is in all probability the same bird as that mentioned by Mr. Cordeaux (p. 9). I had almost resolved not to send you this note, for I am convinced that second-hand information is of very little value—at least, it will nearly always be found to be misleading. As an instance of this, I may mention that a young Eagle was said to have been shot at Seaton, near Seaham Harbour, about the 1st of November, and a paragraph relating the circumstance appeared in the 'Durham Chronicle,' the size of the bird being also given—the expanse of wing put down at six feet seven inches. I happened to meet the writer of the paragraph, and in answer to questions I put to him, he stated that the bird was "spotted all over," whence I concluded it might be the Spotted Eagle. Starting for Seaham Harbour the next morning, I asked the birdstuffer to show me the bird in question, when he pointed to a case which contained a Rough-legged Buzzard, a young bird, and a very dark specimen, with scarcely a spot upon it. On my way home I heard of another Eagle that had been trapped at Colehill, some four miles from Castle Eden, my informant saying I might judge of its size when it took a three-dozen hamper to hold it, in which it had been sent off alive to a naturalist at Beverley. I hope this bird has come under the eye of Mr. Boyes, and I am much mistaken if it does not turn out to be a Buzzard also. It would appear that an unusual number of the larger birds of prey are just now paying us a visit, and the keepers, as usual, are doing their best to kill as many as possible.—JOHN SCLATER (Castle Eden, Durham).

SCARCITY OF THE WOOD PIGEON IN DURHAM.—I have previously remarked (Zool. 2nd ser. 4819) on the comparative scarcity of the Wood Pigeon in the neighbourhood of Castle Eden. The same remarks are applicable for the past year, and I wish to ask whether this bird has been observed to be less common in other parts of the country. Can it be that the Stock Dove is destined to take its place here?—ID.

[Our correspondent omits to say whether the Stock Dove has been observed to have become more numerous than formerly.—ED.]

ROOKS ATTACKING ACORNS.—I can corroborate, from personal observation, the Editor's remarks in the last number of 'The Zoologist' concerning the attacks on acorns by the Rooks. Close to this Vicarage are the grounds of Mr. F. J. E. Jervoise, in whose garden stand some ten or twelve fine old *Ilex* oaks, and it was only about a fortnight ago, in the middle of December, that I watched for some minutes a whole flock of Rooks busily engaged on the *Ilex* trees, flying from branch to branch, and balancing themselves as best they could on the extremities of the outer branches while they searched for or secured the coveted prize. It was a scene of wonderful bustle and activity; and I may mention that a couple of Jackdaws emulated the Rooks in their exertions. It is a common practice with them here, and the rookery being in the adjacent field I have often observed the same scene. I regret I have never accurately noticed what the Rooks did with the acorns—whether they actually swallowed them or not; on another occasion I will notice this point.—A. P. MORRES.

ROOKS ATTACKING ACORNS.—There are three oak trees close to our windows, one being not more than ten or twelve feet distant, the branches of which in autumn are covered with acorns. As long as I can remember Rooks have been in the habit of visiting them every season in order to pull off the acorns, six or seven Rooks being often on the trees at a time, and occasionally quite a flock. On alighting on a branch a Rook seizes an acorn in its bill, and, if it is fast on and green, gives it a twist, and flapping its wings wrenches it off and flies away with it. I am of opinion that they eat the acorns, and do not carry them off to extract a worm, as Mr. Harting suggests, since I never found a maggot or worm in any of the acorns, though I have examined them with a knife over and over again. However, not having seen a Rook actually swallow an acorn, and not having shot any for the purpose of examination, I am unable to give direct and positive evidence as to the object of their attacks. I was always under the impression that the Rooks conveyed them away to some open field or exposed bank, as they do young potatoes, there to enjoy a meal without fear of being molested or disturbed, having at the same time something firm against which to peck the acorn or potato, as the case might be. Rooks, as a rule, do not swallow even small potatoes whole, but peck them in pieces. I was ignorant of the fact that the acorn has not been generally mentioned as the food of the Rook until Mr. Harting drew attention to it in 'The Zoologist.' There are several walnut trees not far from the oaks, but I never saw the Rooks on them, nor did they ever alight on the ground to pick up an acorn, but perhaps that may be accounted for by the trees being so near a dwelling house.—RICHARD M. BARRINGTON (Fassaroe, Bray, Co. Wicklow).

SPOTTED REDSHANK IN HAMPSHIRE.—Three years ago I heard that a specimen of this rare bird was killed in the meadows over here, but as I neither saw it myself nor learnt the name of the person who shot it, I considered the report doubtful. I am now able, however, to record a well-authenticated instance of its occurrence, a specimen having been shot on the 4th of September by a friend of mine. It was very much mutilated, but he gave it to me, and I spared no pains to make it a tolerable specimen. Messrs. Marshall and Stansell, of Taunton, came to see me the day it was killed, and they saw the bird in the flesh. Its weight was five ounces and a quarter, and the stomach contained two worm-like creatures, such as I believe I have seen upon the sea-shore—hence the bird could not have got them in this neighbourhood. The most noticeable characteristic about the appearance of this specimen is the white triangular markings on the outer web of many of the dark feathers on the wing-coverts and tail, which give them a scalloped looking outline; beside this the tail-feathers are barred very prettily with pale gray. The back is white, as well as the throat and cheeks—in fact, this colour extends to the top of the head, but is intersected by a conspicuous dusky streak which runs from the base of the upper mandible to the eye; crown of the head, back and sides of the neck, more or less gray; breast and belly white, dappled with shades of pale brown and gray. The bill is nearly two inches and a half long, and slender, of a dusky colour, except the base of the lower mandible, which is red.

The legs were red, long, and slender, being bare of feathers one inch and a quarter above the knee. I have been particular in describing this species, as I believe it is the first that has occurred in this neighbourhood, although it is reported to have been killed on more than one occasion in Christchurch Harbour. That this species, or any others which love the sea-shore, should sometimes wander up the course of the River Avon, is not to be wondered at, but its occurrence here may perhaps be worth noting.—G. B. CORBIN (Ringwood, Hants).

SINGULAR VARIETY OF THE COMMON GUILLEMOT.—On the 29th November last I was shooting about four miles out from Poole Harbour-bar, and amongst a lot of other birds I got a very singular variety of the Guillemot. Its bill and legs were of a bright yellowish red colour; the feet yellow also, with white nails. Mr. Hart, of Christchurch, who is setting up the bird, has sent me the following description of it:—Length, 18 inches 10 lines; breadth, 28 inches; bill, from forehead, 2 in.—from gape, 2 in. 11 lines; a streak running back from the eyes to a distance of 1¾ inch. Upper parts of bird, wings, tail, &c., dusky brownish black; secondaries tipped with white; under parts, white, &c.; legs, yellowish red; webs, dusky; nails, white. In fact, an ordinary full-sized Guillemot in winter plumage. Subjoined is a note from Professor Newton, which will no doubt be interesting to your readers:—"You are lucky to have obtained that very singular variety of the Guillemot. I have heard of a similar example before, but at this moment I only recollect one instance of it. This is noticed in the defunct German ornithological magazine 'Naumania' for 1857 (p. 437), by Dr. Krüper, who was informed by Pastor Jon Jonsson that such a bird was killed on the 13th July, 1843, at Grimsey, North Iceland. It is said to have been just like an ordinary Guillemot, but had a yellowish red (*gelbrothen*) bill and feet. The young is said to have had white feet, which would most likely have turned yellow with age."—T. M. PIKE (Westport, Wareham, Dorset).

[This singular variety of the Common Guillemot was exhibited by Prof. Newton at a meeting of the Zoological Society held on the 2nd January last, and attracted considerable attention from the ornithologists then present. The bird is in winter plumage, and, in the absence of any other explanation, the pale colour of the bill and legs must be regarded as a variation akin to albinism, or an absence of the normal colouring matter owing probably to some disease.—ED.]

SQUACCO HERON IN KILLARNEY.—The capture of this rare visitant at Killarney, on June 10th, 1875, having been only recorded in 'The Field' of June 19th, 1875, under initials, I beg to offer the following details, in order to establish its authenticity. I was fishing with a friend on the Lanne, a river connecting the Killarney Lakes with the sea at Castlemaine Harbour, and was just nearing a quiet and unfrequented part of the river where the Duntor Woods overshadow it, when my attention was attracted by what appeared at a distance to be a snow-white bird rising out of a reedy marsh near the bank of the river. It flew with a slow and measured flight, passing so near as to enable me to see the pale buff of its back, though its wings were snowy white. I at once knew it must be a stranger. It pitched on a low tree overhanging the water, but having no gun with me I knew it was useless following it, though on my return I saw it standing on one leg on a sandy strand. On the 10th I lost no time in crossing the lakes and speeding down the Lanne, hardly expecting, however, again to see the rare stranger; but fortune favoured me, and on the same strand where I had last seen him standing I again found him. He allowed the boat to glide past within a few yards of him. I landed and walked up to him, but so careless was he of my approach that I had to allow him a few yards' law to avoid blowing him to pieces. I hurried into the stream and captured my prize, to find him a beautiful specimen of the Squacco Heron (*Ardea comata*). A boy herding cattle in the neighbourhood told me he had noticed the bird for some time past. I sent it for preservation to Mr. Thomas Cooke, of Museum Street, London, by whom it was beautifully mounted, and in whose shop it was seen and admired by many ornithologists. It is for the present deposited in the Ornithological Gallery of the Museum of the Royal Dublin Society.—ARTHUR H. BOWLES (99, Lower Mount Street, Dublin).

[The Squacco Heron seems to be a rare bird in Ireland. A specimen was shot many years ago near Youghal, as recorded by Thompson (Nat. Hist. Ireland, Birds, vol. ii. p. 158), and another, also procured in the neighbourhood of Youghal, is in the Museum of the Royal Dublin Society. So far as we are aware, the subject of the present notice makes the third now recorded to have been met with in the Sister Isle. Seeing that the true home of this species is South-Western Asia, Egypt and Nubia, it is rather singular that the only specimens met with in Ireland should all have been found in the south-west of the island.—ED.]

PALLAS' SAND GROUSE IN IRELAND.—No small interest attaches to the appearance of this bird in Ireland, as recorded at p. 24. Previous to its sporadic occurrence in the year 1859 it was unknown as a European bird; the remarkable irruption of more than 700 specimens in 1863, so ably chronicled by Professor Newton ('Ibis,' 1864, pp. 185—222), occurred over a vast area, but has never since been repeated. Now that it has at last reappeared so far west as Kildare, it is extremely probable that this curious Asiatic species has been met with in other places, and it behoves every naturalist to record every authentic instance of its occurrence. The uncertainty which surrounds every question of migration can only be dispelled by diligent colligation of facts.—HENRY T. WHARTON.

MAGPIES FLOCKING IN WINTER.—In 'The Zoologist' for November (2nd ser. 5164) I observe Mr. E. P. P. Butterfield laments the wholesale slaughter of Magpies, and their extinction in so many districts. I have great pleasure in stating that in North Oxfordshire, at least, the day of their extirpation is far distant. In a single walk I have often seen as many as ten, and sometimes many more. In the winter they associate in flocks of from five to thirty-four; I never saw more together than the latter number at one time. There is very little game preserving here, owing to the want of arable land, and therefore Magpies have ample inducement to remain.—C. MATTHEW PRIOR.

MIGRATION OF BIRDS AT HELIGOLAND.—With reference to the notes from Heligoland included in my paper in the January number of 'The Zoologist,' Mr. Gätke has subsequently informed me that the *Phylloscopus* included with a query (Oct. 24th) was seen by him at close quarters in his garden, and that beyond a doubt it was *Phylloscopus fuscatus*, a species which has occurred before in Heligoland. On November 4th Mr. Gätke saw another rare visitor, but not having a gun at hand was unable to procure it; this was *Parus Kamschatkensis*, with the back entirely of a light bluish ashy gray colour—the very image, as he says, of Mr. Dresser's figure in 'The Birds of Europe.' There is a typographical error in my paper, p. 10, twenty-ninth line, under the head of Great Gray Shrike—for "Mr. Boyes mentions *ten*" read "Mr. Boyes mentions *two*" of these birds.—JOHN CORDEAUX.

FOOD OF THE DARTFORD WARBLER.—*Apropos* of Mr. Tyacke's note on the Dartford Warbler (p. 23), I may remark that this bird generally feeds its young on the body of a large yellow moth. I have observed several pairs carrying a light substance in their mouths to the nest, and on shooting one bird from each of two nests, I discovered that the food was the same in both cases. The wings of the moth were removed, and I was not entomologist enough to name the species, but I observed that the birds hunted for their prey among the lower part of the stems of the furze. During the summer Dartford Warblers may generally be found in most of the large patches of furze that are scattered over the South Downs, although, being remarkably shy, they are liable to escape observation, for on the slightest sign of danger they immediately seek the shelter of the bushes. In the winter they seem to be of a roving disposition. I have met with them several times amongst the stunted thorn-bushes and straggling furze on the beach between Eastbourne and Pevensey, and, when rabbit-shooting further inland, I have seen them occasionally driven out by the beagles from cover, where no one would ever expect to find them.—E. T. BOOTH (Dyke Road, Brighton).

MODE OF PROGRESSION OF THE PUFFIN.—Your correspondent, the Rev. Julian G. Tuck, says (2nd ser. 4958) he should be glad to know if any readers of 'The Zoologist' have observed the power of the Puffin not only to stand erect on its feet, but also to walk on the rock with apparent ease. I have observed this many times when lying on the top of the cliffs at Flamborough; and indeed it must of necessity be so, otherwise how could these birds reach the holes in which they breed? They alight on the ledges, perhaps a yard or more from the entrance of the cleft in the rock in which they may have their eggs or young, and then deliberately walk along the edge and into the said cleft or fissure. These large rents in the rock afford shelter for a number of Puffins. I remember on one occasion noticing a crack in the road quite close to where I was lying. It had only a narrow entrance, and two Puffins, apparently young birds, were continually looking out, waiting, no doubt, for the old ones to bring them food, for I believe the young do not leave the rock until fully fledged. During the time I stayed several Puffins pushed themselves past these two and walked inside. These birds frequently breed on the highest part of the cliffs. There are certain places where you can creep to the very edge of the cliffs and watch the birds come up almost close against you; and I have noticed that if they miss their foothold on reaching the ledge on which they intended to alight, they have apparently no power to raise themselves any higher to regain it or try any other ledge, but turn round and sail out to sea again, some of them dropping a considerable distance before being able to recover themselves; so that it is the impetus they have gained which carries them upward, and having reached their highest elevation their dead weight quickly brings them down again, unless they happen to reach the ledge. This is the case, I think, with all the *Alcidæ*.—F. BOYES (Beverley).

NESTING OF THE BRAMBLING IN PERTHSHIRE.—Treating of the Brambling, in his new edition of Yarrell's 'History of British Birds,' Professor Newton says (vol. ii., p. 77), "They are not known with certainty to have bred with us except in captivity." And again, "A long search in various publications fails to shew that it is often seen later than the middle of March, by which time it has usually left Britain; one must therefore receive with caution the statements which have been made as to its breeding in England." Under these circumstances, it is with much pleasure that I now bring to the notice of naturalists an undoubted instance of this bird nesting in Scotland. In the summer of 1866, while fishing on the river Lyon, in Perthshire, I had occasion to climb a beech tree to release the line which had become entangled in the branches, and while so engaged a female Brambling was disturbed from her nest, containing three eggs, which was placed close to the stem of the tree. As I was anxious to procure the young, I left her, and on again visiting the spot in about a fortnight the nest was empty; and, judging by its appearance, I should be of opinion that the young birds had been dragged out by a cat. I have mentioned this fact in the recently published Catalogue of my collection of British Birds.—E. T. BOOTH (Dyke Road, Brighton).

CORRECTION OF AN ERROR.—In the editorial note appended to Mr. Gatcombe's communication on the Blue Shark off Plymouth, it was stated, through a typographical error, that this shark is "not common during the pilchard season off the Cornish coast." The words should have been "not *un*common," &c.

ON THE NATURALIZATION OF THE EDIBLE FROG (*Rana esculenta*) IN NORFOLK.—In 1859 I announced in 'The Zoologist' (1st ser. 6538—6540) the discovery in 1853, by my brother Mr. Edward Newton and myself, of a colony of Edible Frogs in Norfolk, and at the same time I was satisfactorily able to account for its existence. The colony was afterwards sought for by Mr. Southwell, but in vain; and nothing had been heard for many years of the colonists or their descendants. It was therefore with great pleasure that on the 30th of May last, when I happened to arrive at a small station on the Thetford and Watton Railway, my ears were greeted by some well-remembered notes, which I found to proceed from a little pond only a few yards off, and I soon gained a sight of some of the performers. I was fortunate in being in Lord Walsingham's company at the time, and he, entering at once into the interest of the matter, contrived after many unsuccessful attempts to bring to land a single example of the species, which is now in the Norwich Museum. On enquiring of a man who came from a house close by, he said that he had known these noisy Frogs so long as he had lived there—more than a dozen years, and by his means other examples were soon after sent to Mr. Southwell at Norwich. On reference to my former note, it will be seen that this species has thus made good its existence in Norfolk for at least *thirty-four* years, and I cannot doubt that the last colony I found is one of the results of Mr. Berney's original importations, as that gentleman has informed me that he has not introduced any more in the meanwhile, and I know of no one else who is likely to have done so. From Lord Walsingham I have since learnt that he has ascertained that the species is pretty generally diffused in a south-westerly direction from the place where we found it, and therefore its naturalization in the county seems to be accomplished.—ALFRED NEWTON (Magdalene College, Cambridge).

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

December 21, 1876.—Prof. ALLMAN, President, in the chair.

Mr. Thomas Christy (64, Claverton Street, S.W.) and Mr. Robert Drane (Queen Street, Cardiff) were balloted for and duly elected Fellows of the Society.

The Butterflies of Malacca formed the subject of a paper by Mr. A. G. Butler, of the British Museum. A number of new species were described, and a tabular view of the geographical relations given. The author states that of 258 species now registered from Malacca, 36 are endemic; of the remainder 65 also belong to Assam or Nepal, 38 to Moulmein, 33 to Ceylon, 94 to Penang, 46 to Singapore, 112 to Borneo, 41 to

Sumatra, 87 to Java, 39 to Siam, 26 to China, 2 to the New Hebrides, and 6 to Australia. Thus Malaccan butterflies preponderate towards those of the Indian Region.

Two short notices on Hornbills were read. *Craniorrhinus Waldeni* is the name of a new Hornbill from the Island of Panay, one of the Philippines, and described by Mr. R. Bowdler Sharpe, who regards it as allied to *C. cassidix*. The specimen was obtained by Professor Steere (Univ. Michigan, U.S.) in a virgin forest in the mountainous ranges of the above island; the birds keeping high among the branches of dense-foliaged trees, only one specimen was procured. An extract from a letter from Dr. John Anderson contained some observations on *Hydrocissa albirostris* and *Aceros subruficollis*. These Hornbills are kept in the Aviary of the recently-founded Zoological Gardens of Calcutta, and, to the surprise of the writer, he observed that they devour small birds head foremost. They commence by tossing them about and breaking every bone of the body by passing the victim through their bill from side to side.

The genital armature in the European *Rhopalocera* formed the subject of some researches by Dr. Buchanan White. This entomologist, after a careful comparison of the external genital apparatus, holds that the parts in different genera and species exhibit such diversities as, in his opinion, to afford good distinguishing characters.

A new Crustacean, from Australia, *Actæmorpha erosa*, was described by Mr. E. J. Miers. It was dredged at seven fathoms, and came up along with a number of *Cancroidea*, &c. To these, indeed, it bears so close a resemblance as at first to be mistaken for one of them, though subsequent examination has shown that structurally it undoubtedly belongs to the family of *Leucosiidæ*.

Mr. H. N. Moseley, one of the naturalists on board of H.M.S. 'Challenger,' having procured two new and remarkable forms of deep-sea Ascidians, gave a detailed account of their appearance and anatomical peculiarities. The first of these aberrant forms, named by the author *Hybythius calcycodes*, was trawled in the North Pacific Ocean from a depth of 2900 fathoms. It is cup-shaped and stalked, and probably is allied to *Boltenia;* but it differs from this well-known genus, among other things, in possessing a series of cartilaginous plates, developed with symmetrical arrangement on its otherwise soft test. The second still more *bizarre* Ascidian has received the name of *Octacnemus bythius*, and this was raised from a depth of 1070 fathoms. Star-shaped, or of 8-rayed contour, its gill-sac is nearly horizontal, and gill network absent. Muscular prolongations of the tunic run into the curious conical protuberances of the test; the nucleus is contracted and small like that of *Salpa*. So far as present knowledge goes, this unique specimen is believed to be without living allies.

Mr. A. G. H. Doran communicated, through Prof. Flower, an extensive memoir on the small ear-bones, or *ossicula auditus*, of the Mammalia, the specimens referred to being deposited in the Osteological Gallery of the Museum of the Royal College of Surgeons. While dealing with these usually diminutive bones *in extenso*, the author more particularly confined himself to summarising the most noteworthy facts relative to those of the *Insectivora*, *Cheiroptera*, *Cetacea*, *Sirenia*, *Edentata*, *Marsupialia*, and *Monotremata*. In the first of these groups, the three little bones (hammer, anvil, and stirrup) present no positive or marked characteristic. Among the Bats there is a resemblance to what obtains in the Shrews, except in the genus *Pteropus*, where the malleus or hammer is of a lower type. Of Whales, *Balæna* has the most generalized type; the Dolphins have relatively stout stirrup arches and other marked features; the Gangetic Dolphin (*Platanista*) has slightly modified ossicula. Those of the Manatee group (*Sirenia*) are at once known and distinguished by their relatively great weight and their shape. The *Edentata* not only differ as a whole, but among the *Armadillos* distinctions of the ossicula exist, and Sloths and Ant-Eaters are known by special characters of their own. The Pouched Mammalia (*Mursupialia*) show a low grade in their small ear-bones; and a still lower form, approaching to that of birds and some reptiles, is evinced in the *Echidna* and Duck-billed Platypus (*Ornithorhynchus paradoxus*). The author's investigations and comparisons lead him to believe that even in such parts as these inner ear appurtenances generic and family characters are apparent, and that these are of some value when considered in connection with other features of a more distinctive character.

Two botanical papers were read, of which we need only append the titles, namely, a "Note on the Uses of a Commercial Cane termed 'Whangee,' a Species of *Phyllostachys*," by Mr. John R. Jackson, of Kew; and "Some Morphological Notes on certain Species of *Thunbergia*," by Mr. Marcus Hartog, of the Royal Botanic Gardens, Ceylon.

Zoological Society of London.

January 2, 1877.—Prof. Newton, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of December, and called attention to a Snowy Owl captured in Ireland, presented by Mr. John Kendall, and to the recent abundance of specimens of this bird.

Prof. Newton exhibited and made remarks on a specimen of a variety of the Guillemot (*Alca troile*), with yellow bill and legs, which had been lately shot by Mr. T. M. Pike on the coast of Dorset.

Prof. Garrod read a paper on the osteology and visceral anatomy of the *Ruminantia*, in which many facts concerning the anatomy of the *Cervidæ* and the *Cavicornia* were brought forward, especially with reference to the shape of the liver and the structure of the generative organs in these animals. Among the most important of these was the observation that the uterine mucous membrane of the Musk Deer (*Moschus moschiferus*) presents no indications of the presence of cotyledons, the contrary being the case in all other Ruminants. Professor Garrod likewise made a suggestion as to a proposed method of expressing the relations of species by means of formulæ.

A paper by Messrs. Sclater and Salvin was read, containing the descriptions of eight new species of South-American birds, namely, *Euphonia Finschi*, *Pheuticus crissalis*, *Octhæca leucometopa*, *O. arenacea*, *Chloronerpes dignus*, *Celeus subflavus*, *Chamæpelia Buckleyi*, and *Crax erythrognatha*.

Mr. R. Bowdler Sharpe read a paper on some new species of Warblers from Madagascar, which had been recently added to the collection in the British Museum, and were proposed to be called *Apalis cerviniventris*, *Bœocerca flaviventris*, and *Dromæocercus brunneus*, the last-named being a new genus.

A communication was read from Mr. G. S. Brady, containing notes on Freshwater Mites which had been obtained from lakes and ponds in England and Ireland.

January 16, 1877.—Prof. NEWTON, F.R.S., Vice-President, in the chair.

Capt. H. W. Feilden exhibited and made remarks on some of the birds collected by him in the Arctic Regions during the recent North Polar Expedition. Sixteen species were enumerated as having been met with on the shores of the Polar Basin, aud north of 82° N.L., but some of these only occurred as stragglers.

The Rev. Canon Tristram exhibited and made remarks on a specimen of a rare terrestrial Dormouse (*Eliomys melanurus*), obtained by him in Southern Palestine, where it is found in desert places.

Mr. P. Sclater exhibited and called attention to a collection of Mammals, Birds, and Insects, which had been made by the Rev. George Brown during his recent residence in Duke of York Island, and during excursions to the neighbouring Islands of New Britain and New Ireland.

Prof. A. H. Garrod read a note on a variety of the Domestic Swine in the Society's collection, and pointed out that the presence of rudiments of a supplementary digit between the third and fourth digit might be the cause of the consolidation of the hoof, observable in this variety.

A communication was read by Mr. Henry Durnford containing notices of the habits of some small mammals obtained in the neighbourhood of Buenos Ayres.

A communication was read from Mr. Gerard Krefft, containing notes on a young Cassowary (*Casuarius australis*), which had been obtained from North Australia, and was destined for the Society's Collection.

A communication was read from Mr. G. French Angas, containing a description of a new species of *Helix* from South Australia, which he proposed to call *Helix* (*Rhagada*) *Kooringensis*.

A second paper by Mr. Angas contained the description of two genera and twenty species of marine shells from different localities on the coast of New South Wales.—*P. L. Sclater*.

ENTOMOLOGICAL SOCIETY OF LONDON.

December 6, 1876.—Sir SIDNEY SMITH SAUNDERS, C.M.G., Vice-President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' nos. 173 and 174; presented by the Society. 'The Zoologist' and 'Newman's Entomologist' for December; by T. P. Newman. 'Entomologist's Monthly Magazine' for December; by the Editors. 'The Naturalist; Journal of the West Riding Consolidated Naturalists' Society,' no. 17; by the Society. 'Nature,' nos. 366—370; by the Publishers. 'A Monographic Revision and Synopsis of the Trichoptera of the European Fauna;' by the Author, Robert McLachlan. 'British Gall Insects;' by the Author, Albert Müller, of Basle. 'The Canadian Entomologist,' vol. viii., nos. 9 and 10; by the Editor. 'L'Abeille,' no. 182; by the Editor. 'La Famille des Ephémérines,' par le Rev. A. E. Eaton, traduit de l'Anglais; by the Translator, Dr. Emile Joly. 'Tijdschrift voor Entomologie,' 3e & 4e Aflevering, 1875-6; by the Entomological Society of the Netherlands. 'Entomologische Monographieen,' von Dr. Fr. Klug; presented by Edward Sheppard, Esq. 'Die Schmetterlinge Deutschlands und der Schweiz,' Band ii., Heft 2; by the Authors, H. v. Heinemann and Dr. Wocke. 'Genera Cimicidarum Europæ,' disposuit O. M. Reuter; 'Capsinæ en America boreali in Museo Holmiensi asservatæ,' descriptæ ab O. M. Reuter; 'Bidrag till Kännedomen om Syrphus flugornas larfver och puppor,' af Filip Trybom; 'Species Tortricum et Tinearum Scandinaviæ,' enumeravit H. D. J. Wallengren; 'Insecta Transvaaliensia, Bidrag till Transvaalska Republikens i Södra Afrika Insekt-fauna,' af H. D. J. Wallengren; 'Tvenne för Skandinaviens Fauna nya Pyralider,' af H. D. J. Wallengren; by the Royal Swedish Academy of Sciences of Stockholm.

Election of Members.

M. Eduard Grube, Director of the Zoological Collection in the University of Breslau, and Dr. Katter, of Putbus, in the Island of Rügen, were balloted for and elected Foreign Members. Lord Dormer, formerly a Subscriber to the Society, was re-elected a Subscriber.

Exhibitions, &c.

Mr. McLachlan (on behalf of Mr. W. Denison Roebuck, of Leeds) exhibited some locusts, a swarm of which had been observed to pass over Yorkshire during last autumn. He had examined the specimens carefully, and had compared them with the descriptions of the two species which occasionally visited this country, *viz.*, Pachytylus migratorius and P. cinerascens; and he had come to the conclusion that the specimens belonged to P. cinerascens, which he remarked was supposed to breed in some parts of the north of Europe, and therefore might be expected more frequently in this country.

Mr. W. C. Boyd exhibited living larvæ of Brachycentrus subnubilus, in their quadrilateral cases, reared from the eggs. They were of much larger size than those previously exhibited by him at the November meeting in 1873, being more than half an inch long.

Mr. S. Stevens (on behalf of Mr. Edwin Birchall) exhibited a specimen of Cirrhœdia xerampelina, *var.* unicolor, Agrotis Lucernea, *var.* latens, and what appeared to be a small *var.* of Zygæna filipendulæ, with the pupa-case and cocoon. They were all taken by Mr. Birchall in the Isle of Man.

Mr. Meldola referred to a request made by Mr. Riley at the meeting in July, 1875, that entomologists would supply him with the cocoons of the parasite, Microgaster glomeratus, which were much wanted in America to destroy the numerous specimens of Pieris rapæ which had been imported into that country. Mr. McLachlan had at a subsequent meeting stated that M. glomeratus was parasitic on P. brassicæ, but doubted if it ever attacked P. rapæ, and Mr. Meldola now exhibited the insects he had found parasitic on these two species—that on P. rapæ being Pteromalus imbutus, *Waltl.* (one of the Chalcididæ), while on P. Brassicæ he had observed Microgaster glomeratus and a Dipterous species, Tachina angusta. Specimens of all of them were exhibited. Mr. E. A. Fitch remarked that Van Vollenhoven had obtained Pimpla examinator from P. Napi.

Mr. Smith stated that he had received a nest of Osmia muraria, sent to him from Switzerland. The cells were empty, the Osmiæ having taken their departure, but one closed cell was observed to contain a yellow larva, which ultimately proved to be that of a beetle belonging to the Cleridæ, Trichodes alvearius.

Mr. Hamilton James, of Truro, forwarded a photograph of a specimen of Deiopeia pulchella, taken on the 12th October last at Portscatter, near Falmouth, stating that it was considered a very rare insect in Cornwall.

Sir Sidney S. Saunders exhibited a large box of insects of all orders, which had been collected in Corfu by Mr. Whitfield, and were now for sale.

Sir Sidney Saunders also exhibited several larvæ of Meloïdæ in their first stage, received from M. Jules Lichtenstein, of Montpellier, consisting of—

1. The primary larval form of Sitaris Colletes (*Mayet*), found on Colletes succincta, feeding on ivy-blossoms in September, the former described by M. Valéry Mayet in the 'Annales' of the French Entomological Society, 1875.

2. The same larval stage of Mylabris melanura obtained from the egg, which M. Lichtenstein had not succeeded in rearing to the second stage. Like other larvæ of Meloïdæ in their primary form, it is furnished with triple tarsal appendages. A description of this larva will appear in the aforesaid 'Annales.'

3. The exuviæ of the primary larva of Meloë cicatricosus (from the egg), and also the *second* stage of the same larva, still bearing legs.

4. The primary larva of Meloë proscarabæus (?), differing from the foregoing in the structure of the antennæ. Taken on an Andrena.

5. The corresponding larval stage of Meloë autumnalis (?), also differing as aforesaid. Taken on Scolia hirta.

Also specimens of the Phylloxera of the vine in various stages, consisting of—*a.* The root-type; *b.* The leaf-gall type; *c.* The winged stage; *d.* The male of the apterous sexual race.

Mr. C. O. Waterhouse made some remarks on the 'Catalogus Coleopterorum' of Gemminger and v. Harold, the concluding volume of which was now published. The total number of generic names given is 11,618, of which 7364 are adopted genera, and 4254 appear as synonyms. The total number of species recorded is 77,008. Dejean's first Catalogue, published in 1821, gave 6692 species, while that of 1837 (the third edition) gave 22,399 species, of which, however, only a portion were then described. Taking into consideration the number of species described during the publication of the Munich Catalogue, the number of described species at the present date could not be less than 80,000. Thus, since 1821, the known species of Coleoptera had increased twelvefold.

Mr. C. O. Waterhouse read "Descriptions of Twenty New Species of Coleoptera from various Localities."

Annual Meeting, January 17, 1877.—Sir SIDNEY SMITH SAUNDERS, C.M.G., Vice-President, in the chair.

An Abstract of the Treasurer's Accounts for 1876 was read by Mr. Dunning, one of the Auditors, showing a balance of £6 8*s.* in favour of the Society.

The Secretary then read the Report of the Council for 1876.

The following gentlemen were elected Members of Council for 1877:—Sir Sidney Smith Saunders, Professor Westwood, Rev. A. E. Eaton, Rev. T. A. Marshall, and Messrs. H. W. Bates, G. C. Champion, J. W. Douglas, J. W. Dunning, F. Grut, R. Meldola, E. Saunders, H. T. Stainton, and J. Jenner Weir.

The following officers were subsequently elected for the year 1877:—President, Professor Westwood, M.A., F.L.S., &c.; Treasurer, J. Jenner Weir; Hon. Secretaries, Messrs. F. Grut and R. Meldola; Hon. Librarian, Rev. T. A. Marshall.

The President (Prof. Westwood) having been unfortunately prevented from attending by an accident, the reading of his Address on the progress of Entomology for the past year was unavoidably postponed until the next meeting, on the 7th February.

A cordial vote of thanks was given to the President, with an expression of regret at the cause of his absence on this occasion. A vote of thanks was also given to the Treasurer and Secretaries.—*F. G.*

NOTICES OF NEW BOOKS.

The Geographical Distribution of Animals. By ALFRED RUSSEL WALLACE. Two Vols., 8vo. London: Macmillan & Co. 1876.

IN the Preface to this important work the author describes it as "an attempt to collect and summarise the existing information on the distribution of land animals, and to explain the more remarkable and interesting of the facts, by means of established laws of physical and organic change."

Of living naturalists Mr. Wallace is probably the one best fitted, by his training and experience, to deal with the subject which he has undertaken: he is familiar with the aspects of life in three of the richest zoological provinces of the world,—namely, South America, and the Indo- and Austro-Malayan Archipelagos,—and those who know him personally are aware that the geographical distribution of animals has been a study with him for the last twenty years. The two published volumes which embody the result of his labours are divided into four parts, *i. e.*, the Principles and General Phenomena of Distribution; the Distribution of Extinct Animals; Zoological Geography; and Geographical Zoology.

It would be impossible, within the limited space at our disposal, to discuss in detail the different subjects dealt with in the twenty-three chapters into which the work is divided, and we must content ourselves with presenting to our readers a faint outline of the general argument.

Mr. Wallace is of opinion that the existing continents and deep oceans are of great geological antiquity; that during the eocene period the bulk of the land was on the northern side of the Equator; and that in that hemisphere the struggle for existence was more severe than in the southern hemisphere. Consequently the highest and most specialized forms of animal life are to be found north of the Equator. In supporting his views, with much sound reasoning, Mr. Wallace has adopted the six zoological regions first proposed by Mr. Sclater in 1857, and these are now generally accepted as natural divisions of the earth's surface. With the exception that Mr. Sclater's Indian Region is altered by Mr. Wallace, in name only, to the Oriental Region, no other important change is suggested. The six regions accordingly stand as the Palæarctic, the Ethiopian, the Oriental, the Australian, the Nearctic, and the Neotropical; each being divided into four subregions.

The only subregion in which no mammals exist, except Bats, is New Zealand; and Mr. Wallace explains this fact by supposing that New Zealand has not been connected with any other part of the earth's surface since the creation of the *Mammalia*. The great region of Australia is almost destitute of placental mammals, showing, according to our author, a very ancient isolation of that part of the world.

The various cases of the existence of isolated forms in South America and South Africa are also explained by the supposition that these regions, separated in remote geological times, were large islands, and the struggle for existence there not having been so severe as in the northern hemisphere, low forms of *Mammalia*, such as the *Edentata*, *Caviidæ*, and others have survived to the present day. We are very much disposed to accept this reasoning, and it well explains the existence of such low forms of birds as *Apteryx* in New Zealand, the *Tinamidæ*, *Dicholophus*, and others in South America, *Rhinochætus* in New Caledonia, and such an aberrant form of the *Accipitres* as *Serpentarius* in Africa.

In the opinion of Mr. Wallace, the present state of the globe is one of zoological depauperization, caused by the glacial period.

It was probably owing to the separation of North from South America, at that period, that the complete extinction of the *Proboscidea*, *Equidæ*, *Rhinocerotidæ*, and other *Ungulata* was there effected. These animals were probably driven south by the cold, and, not having a large southern continent to retreat to, were completely exterminated. The existing *Tapiridæ* are the only descendants amongst the *Perissodactyla* that exist in the Neotropical Region at the present day, none being now found in the Nearctic Region.

Amongst insects, Mr. Wallace has wisely confined his attention to the groups best known, as the Rhopalocerous *Lepidoptera* and the more showy amongst the *Coleoptera*, because these alone have been sufficiently studied to afford adequate material for generalization. Mr. Wallace has a singular power of suggesting an explanation of a difficulty, and this is well shown in his observations on the occurrence of numerous insects in South Temperate America which belong to genera found otherwise in north temperate regions only. Amongst the diurnal *Lepidoptera*, for instance, species of the genera *Hipparchia*, *Argynnis*, and *Colias*, and several genera allied to *Erebia*, are found in South Temperate America, and form a sufficiently remarkable group of northern forms, to render an explanation of their origin necessary. Mr. Wallace, indeed, admits that both in diurnal *Lepidoptera* and in *Carabidæ*, the northern element is fully equal to the tropical, if it does not preponderate over it. The whole of his argument is too long to be here extracted, but he points out that the great mass of neotropical butterflies are forest species, and for countless ages have been developed in a forest-clad tropical country. The north temperate butterflies, on the other hand, are for the most part species frequenting the open country, haunting pastures, mountains, and plains, and often wandering over an extensive area. These would find in the higher slopes of the mountains vegetation and conditions suited to them, and would occupy such stations in less time than would be required to adapt and modify the forest-haunting groups found in the American lowlands. It should not be forgotten, also, that along the higher regions of the Andes there is an almost continuous temperate region, which would provide for the animals of Northern Temperate America a district along which they could pass through Tropical America into the cooler regions of the south.

Some naturalists are of opinion that the time has not yet arrived for the production of a book of such high aim as that now under consideration. It must be admitted that systematists are sadly behind-hand in the arrangement of many classes of Vertebrates, the classification of birds, for example, being in almost as confused a state as ever; but we can see no reason why the present generation of philosophical naturalists should be condemned to exist in a state of zoo-geographical ignorance. In a concluding paragraph Mr. Wallace expresses a hope that his work may bear to the eleventh and twelfth chapters of Mr. Darwin's 'Origin of Species' the same relation which that author's 'Animals and Plants under Domestication' bears to the first chapter of that work. It appears to us that the standard of excellence aimed at in the present undertaking has been satisfactorily and ingeniously attained.

Life of a Scotch Naturalist: Thomas Edward. By SAMUEL SMILES, Author of 'Lives of the Engineers,' 'Self Help,' &c. 8vo, pp. 438. London: Murray, 1876.

WHO is Thomas Edward, to whom the Queen has been pleased to grant a pension of fifty pounds per annum? and what has he done to merit such distinction? are questions which many persons no doubt have asked themselves on reading in the newspapers the recently-published letter of the Prime Minister. The answer is to be found in the book before us, and we have little doubt that to the majority of readers the story will be as little known as the name of its hero.

To readers of 'The Zoologist,' however, the name of Thomas Edward will be familiar, as that of a frequent contributor to the pages of that journal, and a genuine out-door observer and field naturalist, who in a quiet, humble way, has done much to further the progress of his favourite science.

A shoemaker by trade, at Banff, and a poor man, he had not the means to inform himself as others with similar tastes have done. With an intense love for Natural History, and a perpetual thirst for knowledge, "he endured," says his biographer, "as much hardship for the cause of Science as soldiers do in a prolonged campaign." He always lamented his want of books, and in the course of his collecting had frequently to send his specimens to other naturalists to be named, and thus he often lost them.

"Edward," we are told, "had to begin at the beginning with everything." He did not possess a single work on Natural History. He did not know the names of the birds and animals that he caught, or of the plants which he collected. For many years after he had begun his researches his knowledge of natural objects was obtained by chance. He knew little of the nature and habits of the creatures that he went to seek; he scarcely knew where or how to find them. Yet his very absence of knowledge proved a source of inexhaustible pleasure to him. All that he learnt of the form, habits, and characteristics of birds and animals was obtained by his own personal observation. Besides his intense love of Nature he possessed invincible determination, and this gave him an immense advantage. Whatever object in Natural History he desired to possess, if it were possible to obtain it, he never rested until he had succeeded. He sometimes lost for a time the object of which he was in search, because he wished to study its habits: for this purpose he would observe long and patiently before obtaining it, by which means he acquired an amount of information such as no book on Natural History could have supplied him with.

Dependent for an income upon his trade, he worked at it the livelong day, but early dawn and gathering twilight saw him far afield in eager search of natural living objects, while snatching his sleep at intervals between departing night and returning day. Occasionally, when kept late at work, he was prevented from enjoying his evening ramble. After going to bed, and taking a short sleep, he would set out in the dark in order to reach a particular spot by daylight, whence he would work his way homeward as the hour for business approached. Sometimes in his enthusiasm he would remain out all night, sleeping in a fox's or badger's "earth" which he had enlarged for the purpose: nor did he scruple to avail himself of a dry ditch, or even to lie upon the bare ground, when the exigencies of the case seemed to require it. How he managed to escape severe illness is a mystery; his constitution, it may be said, seemed "made to last." On such occasions his endurance was generally rewarded by some exciting adventure, or by the acquisition of some rare specimen of which he had long been in search.

Although he never succeeded in catching a Weasel asleep, he was once caught asleep by a Weasel! It happened thus:—Exhausted with fatigue he had flung himself down by a dyke-side and fallen asleep, having previously placed in his hat for safety some young birds which he had found during his ramble. He had not slept long when he was suddenly awakened by something cold pressing in between his forehead and his hat. It was a Weasel, who had scented the birds and was trying to get at them. Edward threw him away to some distance amongst the grass, and went to sleep again: but the Weasel found his way back, and again attempted to displace his hat. Three times was the pertinacious little animal repulsed and flung to a distance, and three times did he return to the attack; until the would-be sleeper was at length compelled to strangle him to secure a night's rest. He had a very similar adventure with two Rats, and on another occasion he had a most desperate encounter with a Polecat which he had seized with his bare hands, and after a severe struggle, in which he was terribly bitten and scratched, he succeeded in forcing down its throat some chloroform which he always carried with him for the purpose of killing insects, and eventually despatched it. Fancy administering a dose of chloroform, single-handed and bare-handed, to a Polecat! Verily these Scotch naturalists have no lack of courage.

He had an odd adventure one night with an Owl. He had fallen asleep in a fox's "earth," with his head upon the lock of his gun: before entering the burrow he had caught a Field Mouse, which he wished to take home alive, and he thought the best way to do this was to tie a string, about six feet long, round its tail, and attach the other end to his waistcoat; the little fellow had thus full liberty to the end of his tether. While Edward was sleeping soundly, he was awakened by something tugging at his waistcoat, and by hearing some terrific screeches close to his head. Starting to a sense of recollection, he remembered the Mouse, and pulled back the string to which it had been attached. The Mouse was gone: nothing but the skin of his tail remained. He looked up and saw an Owl sitting on a tree a few yards off. The situation was explained.

Being resident, as we have said, at Banff, his rambles extended coastwise along the shore of the Moray Firth for about seven miles in one direction and about six in another. These excursions also extended inland for about five or six miles. He had thus three distinct circuits (many views from which have been beautifully drawn by Mr. Reed as illustrations to the present volume), and although he only proceeded on one at a time, he generally managed to visit each district twice a week.

The use which he made of his time may be judged from the result of these excursions. His accumulation of natural objects became something extraordinary: in eight years he had preserved nearly 2000 specimens of living creatures collected in the neighbourhood of Banff—quadrupeds, birds, reptiles, fishes, crustacea, corals, sponges, and other objects—to say nothing of a large collection of carefully-dried plants, the whole of which he learnt to mount or preserve himself. It is melancholy to think how this fine collection was afterwards sacrificed! Yet so it was. Quitting his native place, as many a man has done, "to better himself," Edward left Banff for Aberdeen, taking with him the whole of his treasures, and made a painful effort to gain a livelihood by opening his museum to the public at a small charge for admission. But "the people of Aberdeen were not yet prepared for such an exhibition, especially as it had been the work of a poor man. He was candidly told that he had come several centuries too soon!" Very few visitors came, and those who did come knew very little about Natural History. The receipts, never large, became less and less, until, to save his family from starvation and to pay off debts unavoidably and most unwillingly incurred, the whole collection was one day sold for the pitiful sum of £20 10s.! It was purchased by a Mr. Grant for a son who had a taste for Natural History, and the specimens were all removed to his house at Ferryhill. They were afterwards removed to St. Nicholas Street, where they were stored up in some damp and unsuitable room, and, being otherwise neglected, it is believed that the whole collection eventually went to ruin.

It must have been a bitter pang to part with it—the cherished result of years of toil and trouble; but stern necessity stared him in the face, and Edward was glad to receive even the paltry sum he did to free him from the terrible anxiety of living without an income. He quitted Aberdeen and returned to Banff to work at his old trade, and felt happier to be amongst his old friends than with the unsympathetic folks he had left behind him.

Fortunately for others, although the collection had gone, the knowledge gained in forming it had been well stored, and, through the kindness of his friend the Rev. Mr. Smith, of Monquhitter, Edward, whose keen powers of observation gave eloquence to his descriptions, was enabled to impart much valuable information to many of his brother naturalists.

Those who would know something of what he has accomplished in only one department of Zoology, should consult Bates' and Westwood's 'History of British Sessile-eyed Crustacea,' wherein his services are fully acknowledged. Of the numerous Crustacea mentioned in that work, Edward collected *one hundred and twenty-seven* in the Moray Firth, *of which twenty were new species!* Many of his beetles and other insects he sent for identification to our late friend Edward Newman, who named them for him, and assisted him liberally with books on Natural History that were likely to be useful to him. Their correspondence originated in his articles on the "Birds of Banffshire," which began to appear in 'The Zoologist' in August, 1856, although this was not his first contribution to this journal. Mr. Newman asked for some information about fishes, which Edward promised to supply: the result was that many new fishes were found in the Moray Firth, simply from his determination to search for, collect, and preserve them.

When Mr. A. G. More was collecting material for his excellent papers on the distribution of birds in Great Britain during the nesting season, published in 'The Ibis' for 1865, Edward was asked by him to act as observer for Banffshire and the northern part of Aberdeen, in which capacity he communicated much useful information, which Mr. More fully acknowledged.

But his most important correspondence has been with Mr. Couch on British fishes, and with Mr. Spence Bate and the Rev. A. M. Norman on Crustacea. To these subjects two chapters (XV. and XVI.) have been wisely devoted in the volume before us, and Mr. Smiles has rendered a service to zoologists by bringing together in this way much valuable information which was previously scattered throughout various books and periodicals. These chapters are very instructive, and should be read *in extenso.*

Like many others, not alone naturalists, Edward has had his share of loss and disappointment. What more vexing than to lose a beautiful series of *Lepidoptera* through the depredations of mice, and to have a valuable collection of dried plants, which had taken years to prepare and name, entirely destroyed through the ill-mannered behaviour of a couple of cats?

There was one Crustacean about which some difficulty had arisen. It was *Mysis spinifera*, which Edward had first found in the Moray Firth in 1858. He had sent it to one of his correspondents to be named, but it remained unnoticed and unknown for at least four years, when it was re-discovered in Sweden by M. Goes, who at once published the fact. "Thus," says Edward, "the first finder, as well as the country in which this Crustacean was first found, have both been ignored in the records of Science."

But the day of disappointment, we trust, has passed: after years of unceasing labour in the pursuit of knowledge, and withal of patient struggling with adversity, perseverance has had its reward. Fortune at length has smiled upon our naturalist (in a twofold sense), and few will read the 'Life of a Scotch Naturalist' without echoing the words of the Queen, who, "touched by his successful pursuit of Natural Science under all the cares and troubles of daily toil," has graciously conferred on him a well-merited reward.

If we have abstained from criticising Mr. Smiles' share in this book, it is because we think that the sense of gratification which he must feel in having been the means of obtaining a pension for a most industrious and deserving man will be a far greater recompense to him than any praise bestowed by unknown critics.

Whether it is desirable to write a man's biography in his lifetime is a question upon which there may be two opinions. Mr. Smiles has anticipated the objection in his preface, where he pleads justification on the ground that his hero's life is well-nigh ended, and that his work is done. A further argument in his favour may now be found in the fact that had the 'Life' not been written, the Scotch naturalist would not have received his pension. Let us hope that he may yet live long to enjoy it.

Our Birds of Prey; or, the Eagles, Hawks, and Owls of Canada. By HENRY G. VENNOR, F.G.S. With thirty Photographic Illustrations by W. Notman. 4to. Dawson Brothers, Montreal; Sampson Low & Co., London. 1876.

MR. VENNOR, in his "Introduction," tells us that he has been engaged on the present work for thirteen years; and he writes:—

"From the year 1865 to the present, in connection with explorations undertaken on behalf of the Geological Survey of Canada, I have had unusual facilities for field observation, and have traversed the greater part of that portion of Ontario which may be described as lying between the Ottawa river and its sources, and the St. Lawrence and its great lakes, a region the interior of which is but thinly settled, and comparatively unknown; also a large part of the country lying to the northward of the Ottawa river, between the Lake of Two Mountains and Pembroke." The author further informs us that he considers that the Ornithology of Canada has received a very fair share of attention from naturalists both at home and abroad. In this opinion, however, we cannot concur, for at present Canada compares in this respect very unfavourably with the United States. We therefore welcome with pleasure this first instalment of a work on the birds of that country, for we trust that Mr. Vennor will receive such an amount of appreciation as will induce him to continue his publications on this interesting subject. He is properly impressed with the difficulties which always attend the production of an ornithological work in these days of multiplied synonymy and many books, which he does well not to force upon his readers, and he is not content with the mere descriptions of the birds, but he also brings forward the characteristic details of the whole order *Raptores*, so that this work would give any student a good general idea of the birds of prey. This is to our mind one of the great recommendations of the volume; but Mr. Vennor has not thoroughly succeeded in impressing us with the advantages of photographic illustrations for an ornithological work. As specimens of photography the plates executed by Mr. Notman are admirable, but the stuffed specimens which are photographed are very unequal in merit. For those, however, who are inclined to adopt this mode of illustration, we will quote, in justice to himself, the author's words, "On the Attitude and Form of the Birds figured":—

> "These are points requiring a great deal of attention in the photographing of stuffed specimens, and respecting which I have already been brought to task by a few of my naturalist friends, to whom some of the plates were shown. My experience, however, among naturalists has been that no two agree as touching any position which may be chosen for a bird; and consequently no plates, no matter how perfectly executed, could please all. Besides I have invariably found that those who find most fault in

this respect are persons who have been little on the *field* themselves, or, in other words, who rather belong to the class known as *closet* than *field* naturalists; the latter knowing well that it is really almost impossible to conceive of a position which is not sometimes assumed by the living bird. Of this point I have recently been more convinced than ever from the study of two living specimens of Owls—the Snowy Owl and the Short-eared Owl—which have been in my possession for some months. For instance, taking one out of the many positions indulged in by the first of these birds, what would my criticising friends have thought and said had I represented him as a round ball of white feathers, head hardly perceptible, feet entirely concealed, and squatting on the ground like a hen covering her chickens? Yet this is the position in which I always find my Snowy Owl when I unexpectedly enter her abode. When aroused, however, she draws herself up, her head and feet become visible, and she presents such a figure as one of those given on the two plates allotted to this species in this work. The Short-eared Owl has many remarkable attitudes, and most of these differing from any of those in which the bird is figured in ornithological works. His wings are seldom kept close to his body, but rather in a drooping position, and either resting on the perch on which he sits, or, as the case may be, trailing on the ground; while his head is generally sunk deeply between his shoulders. In fine, the attitude of a bird is anything conceivable. The form of the bird is of far greater importance than its attitude, and in the specimens selected for this work this was carefully perpetuated by means of girths and numerous measurements made from the bird *while in the flesh*, and generally immediately after death.

“ Of still greater importance, however, than either of the foregoing points is the careful selection, already referred to, of proper or typical forms of plumage, of young, old, male and female birds. Compared with this, the attitude is of but trifling consideration, and it would have served the purpose of this work equally well had I simply selected and photographed appropriate unmounted skins. Indeed, had it been necessary in order to show properly some specific detail connected with the feet and claws, I should not have hesitated to have mounted the bird accommodatingly holding forth his foot for the inspection of the enquiring student; so when the exhibition of the under sides of the wing was desirable I have not hesitated to give the bird the necessary position. In fine, the main object of this work is practical utility—not a mere exhibition of pretty photographs.”

On this point, the author, in the foregoing paragraph, has almost disarmed criticism, and, after reading what he says, we are inclined to agree with many of his arguments; for the purposes which he has in view, we must certainly say that the photographs, of which there are no less than thirty, give in most instances a much better idea of the species than badly executed plates would do under similar circumstances. The nomenclature of the Canadian birds of prey adopted by Mr. Vennor is principally that employed by Mr. Ridgway in the great work on 'North-American Birds'; but in certain instances we cannot agree with him, as, for example, when he classes the Greenland Falcon (*Falco candicans*) and the Labrador Falcon (*Falco Labradorus*) under the head of one species, which he calls *Falco sacer* of Forster. The information given under Swainson's Buzzard will be largely supplemented by future observations; for although Mr. Vennor appears to have been under the impression that the species was hardly distinct, there is really not the smallest doubt as to its being a very well-marked species, and representing in the northern part of the New World the well-known Common Buzzard of Europe. Again, Mr. Vennor follows Mr. Ridgway in treating the South-American Harrier (*Circus cinereus*) as a mere "variety" of *C. Hudsonius*; but we must remark, *en passant*, that if such well-marked birds are not to be considered as true and distinct species then all the other Harriers of the world may as well be united under one heading. He duly notes the rarity of blue-plumaged Harriers as compared with the brown-plumaged individuals, and it is possibly the rarity of the former that has prevented him from giving more than a figure of a female or young bird.

In conclusion, we may remark that no one can study this book without finding that it adds greatly to our knowledge of Canadian Ornithology, and we observe with pleasure the very careful notes on the habits and distribution of the species. In every instance, also, the soft parts of the birds are given—a feature omitted in the work on 'North-American Birds' above alluded to.

The Fox at Home, and other Tales. By GEORGE ROOPER, Author of 'Flood, Field, and Forest,' 'A Month in Mayo,' &c. With eight illustrations by G. Bowers and J. Carlisle. Second Edition. Post 8vo, pp. 248. London: Hardwicke & Bogue. 1877.

THIS little volume, as may be gathered from its title, is written perhaps rather for lovers of sport than for lovers of Natural History, but to both the book will be welcome. Every page bears upon it the impress of an observant study, both of man and animals, a power of imparting the fruits of such study to others, and a thorough appreciation of all those little lights and shades in Nature, apparently unimportant in themselves, but which unite to give force and beauty to the picture of life.

Our author takes us through many sports and some variety of country, beginning with one which we agree with him in thinking one of the most delightful—Fox-hunting. As we read, memories of the past come thick upon us. Again we see the wary old fox as he steals from the covert, the hounds quivering with excitement as they sweep on to the scent, and every nerve is braced as we follow our author o'er plough and pasture, clearing again, in fancy, the hurrying river, and crashing through the tangles of the bullfinch, too high to top. It is in scenes such as these that Mr. Rooper, like his fox, is most thoroughly "at home"; but his enthusiasm is not confined to the saddle. In a short sketch he gives us a week in the Western Highlands, and though our company there consists only of a holiday-making *employé* from a London warehouse, who, having purchased a ten-shilling gun-license, fancies himself every inch a sportsman, still we enjoy the week almost as much as the cockney hero. The description of the Scotch laird and his gillie is capital, their Gaelic unimpeachable, and over the whole is blown a scent of the "muirs" that is really refreshing.

From Scotland we travel to the Sister Isle for salmon and trout-fishing, returning rifle in hand to bring down the buck in our own southern counties, where we again fall in with our cockney friend disporting himself with the "Harriers" at Brighton and the "Queen's" in the Harrow Country.

Most, if not all, of these stories were published many years ago under the title of 'Tales and Sketches,' but they come before us now with some additions, not the least noticeable of which are eight full-page illustrations, somewhat rough perhaps, but withal full of spirit. Indeed, the artists' names (Georgina Bowers and J. Carlisle) sufficiently guarantee their excellence.